## Abstract Of The Disclosure

A graphics system including a custom graphics and audio processor produces exciting 2D and 3D graphics and surround sound. The system includes a graphics and audio processor including a 3D graphics pipeline and an audio digital signal processor. The graphics pipeline renders and prepares images for display at least in part in response to polygon vertex attribute data and texel color data stored as a texture images in an associated memory. An efficient texturing pipeline arrangement achieves a relatively low chip-footprint by utilizing a single texture coordinate/data processing unit that interleaves the processing of logical direct and indirect texture coordinate data and a texture lookup data feedback path for "recirculating" indirect texture lookup data retrieved from a single texture retrieval unit back to the texture coordinate/data processing unit. Versatile indirect texture referencing is achieved by using the same texture coordinate/data processing unit to transform the recirculated texture lookup data into offsets that may be added to the texture coordinates of a direct texture lookup. A generalized indirect texture API function is provided that supports defining at least four indirect texture referencing operations and allows for selectively associating one of at least eight different texture images with each indirect texture defined. Retrieved indirect texture lookup data is processed as multi-bit binary data triplets of three, four, five, or eight bits. The data triplets are multiplied by a 3 X 2 texture coordinate offset matrix before being optionally combined with regular non-indirect coordinate data or coordinate data from a previous cycle/stage of processing. Values of the offset matrix elements are variable and may be dynamically defined for each cycle/stage using selected constants. Two additional variable matrix configurations are also defined containing element values obtained from current direct texture coordinates. Circuitry for optionally biasing and scaling retrieved texture data is also provided.